方法技术

基于高阶谱估计技术的潜山裂缝储层精细预测

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摘要　潜山裂隙储层预测是亟待解决的难题,而高阶谱估计因能有效提取与地下含油气有关的地质信息而备受关注。采用三阶高阶谱分别对理论信号、物理模拟记录以及实际地震资料的谱计算,典型信号的谱计算结果表明,对于不同的信号,其高阶谱表现出了不同的特点。裂隙模型的模拟记录以及实际地震资料的谱计算结果表明:油气显示较好的裂缝发育带,其振幅谱能量块状分布,相位谱简单稳定;而在油气显示不太好的地区,其振幅谱能量零碎分布,相位谱变化快。同时也表明高阶谱估计技术在潜山裂隙储层精细预测方面具有较强的潜力。

关键词　高阶谱　双谱　振幅谱　裂缝储层

Fine prediction of fractured reservoirs in buried hill based on high order spectrum estimation method

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Abstract　Prediction of fractured reservoirs in buried hill is really difficult for geophysicists.Geological information of oil bearing properties can be effectively obtained by using high order spectrum estimation method.In this paper,high order spectrum estimation method was applied to calculate the three order spectra of typical signals and seismic synthetic record from fracture model and actual data.The high order spectra of typical signals behave differently.Results from both theoretical model and real data show that amplitude spectrum is in block distribution and phase spectrum is simple and stable in fracture development zone which is characterized by better oil shows.On the other hand,amplitude spectrum is in scattered distribution and phase spectrum changes quickly in the place where is characterized by worse oil shows.High order spectrum estimation method is promising to predict fractured reservoirs accurately in buried hill.

Key words　high order spectrum;bi spectrum;amplitude spectrum;fractured reservoir

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